WHAT WE CLAIM IS:

1. An optical system, which is transformed to bend an optical axis thereof, thereby varying paraxial amounts thereof.

2. An image-formation optical system comprising at least two optical elements, wherein said at least two optical elements are mutually decentered, thereby varying properties thereof.

3. The optical system according to claim 2, wherein said optical system comprises a first optical element located on an object side thereof to form a primary image and a second optical element for projecting said primary image onto an image plane, and said second optical element is decentered by rotation with a center of rotation defined by the vicinity of said primary image.

4. The optical element according to claim 3, wherein at least one of said first optical element and said second optical element comprises an optical element having at least one rotationally asymmetric surface

5. The optical element according to claim 4, wherein said at least one rotationally asymmetric surface is a continuous surface.

6. The optical element according to claim 3, wherein said second optical element is decentered by rotation with respect to said first optical element, thereby varying at least one of focal length, image-formation position, image-formation magnification and principal point position.

7. The optical system according to claim 2, wherein said optical system comprises two optical elements formed of rotationally asymmetric free-form surfaces or a first optical element located on an object side thereof to

form a primary image and a second optical element for projecting said primary image,

said second optical element is decentered with a center of rotation defined by the vicinity of said primary image so that a light beam incident on said second optical element is reflected and bent at a portion arbitrarily selected out of said second optical element for zooming or scaling at said second optical element, and

said second optical element has an angle of rotation run-out that satisfies the following condition:

$$0^\circ < \theta < 90^\circ \quad \cdots (1)$$

8. The optical system according to claim 2, which satisfies the following condition:

$$0.5 < |Fy/Fx| < 2 \quad \cdots (2)$$

where Fx and Fy are focal length of said optical system in X and Y directions, respectively, provided that a direction of decentration of said optical system defines a Y-axis direction, a plane parallel with an axial principal light ray defines a Y-Z plane and a direction perpendicular to said Y-Z plane defines an X direction.

9. A phototaking system comprising an optical system as recited in any one of claims 1 to 8, which comprises an outer wall for receiving said optical system therein, wherein said outer wall is pressed so that said optical system received in said outer wall is transformed and/or decentered.

10. An image-formation method for an optical system forming an object image, wherein:

said optical system comprises a plurality of optical surfaces, and

said image-formation method comprises transforming at least a portion of said optical system to thereby shift

and/tilt an optical axis position defined by said optical system, so that depending on a change in said optical axis position, a position of said optical axis entered into said optical surface is varied to thereby change an optical power.

11. The image-formation method for an optical system according to claim 10, wherein said optical system comprises at least a first optical element and a second optical element, and

said image-formation method comprises bending an optical path between said first optical element and said second optical element to thereby transform said optical system, so that an optical axis position defined by said optical system is shifted and/or tilted.

12. The image-formation method for an optical system according to claim 11, wherein at least one of said first optical element and said second optical element comprises as an optical surface a rotationally asymmetric curved surface formed in such a way as to have optical power varying depending on an area where said optical axis is entered, so that said optical power is varied depending on a change in the position of said optical axis entered into said optical surface.

13. The image-formation method according to claim 11 or 12, which comprises an outer wall for receiving therein at least said first optical element and said second optical element, and wherein said outer wall is pressed to thereby bend an optical path between said first optical element and said second optical element.